Remarks

Applicant appreciates the thorough examination of the present application as evidenced by the Office Action mailed February 11, 2003. Applicant further appreciates the opportunity provided to Applicant's representative, Shawna Cannon Lemon, to discuss this case with the Examiner on April 29, 2003 and on July 2, 2003. Claims 1, 2, 4-12, 14-18, 21-24, 26-35, and 39-43 are pending in the present application.

Claims 1, 6-9, 13, 29, and 40 stand rejected under 35 U.S.C. § 112, second paragraph. Claims 1-35, 37, and 39-43 stand rejected under 35 U.S.C. § 112, first paragraph. Claims 1-35, 37, 39, and 40-43 stand rejected under 35 U.S.C. § 103(a). Applicant addresses these rejections below.

I. Interview Summary

Applicant acknowledges with appreciation the telephone interview provided by Examiner White with Ms. Lemon on April 29, 2003 and on July 2, 2003. During the April 29, 2003 interview, the Examiner reiterated the obviousness rejections under 35 U.S.C. § 103 and the enablement rejection under 35 U.S.C. § 112, first paragraph, issued in the February 11, 2003 Office Action (the Action). In response to the Examiner's comments, Applicant submitted proposed amendments for the Examiner's review. During the telephone interview on July 2, 2003 to discuss the proposed amendments, the Examiner stated that additional arguments and/or information may be required if certain proposed amendments were to be submitted. Applicant's representative indicated that she would proceed to submit an Amendment with remarks addressing the issues raised by the Examiner in the Action, which is presented in the current Amendment.

II. Claim Rejections Under 35 U.S.C. § 112, Second Paragraph

Claims 1, 6-9, 13, 29, and 40 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. Applicant has amended claim 1 to delete the recitation "associated with a body cavity." With respect to claims 6-9, the molecular weight referred to in the present claims are unit-less values well known to one of ordinary skill in the art. In the present application, the molecular weight is derived from the relative mass of the molecule in relation to an H atom, and thus, does not have a "unit of molecular weight measurement." Therefore, Applicants respectfully submit that the claim language of claims 6-9 is not indefinite as asserted by the Action. Applicant has amended claim 29 to delete the term set forth in parentheses. Applicant has also amended claim 40 to include the recitation "in a body cavity of" in order to further clarify this particular embodiment of the invention.

Accordingly, Applicant respectfully submits that claims 1, 6-9, 13, 29, and 40 are not indefinite under 35 U.S.C. § 112, second paragraph, and respectfully requests that this rejection be withdrawn.

III. Claim Rejections Under 35 U.S.C. § 112, First Paragraph

Claims 1-35, 37, and 39-43 stand rejected under 35 U.S.C. § 112, first paragraph, as lacking enablement. More specifically, the Action asserts that the specification "while being enabling for reducing the incidence of adhesion of tissues in or associated with a body cavity, does not reasonably provide enablement for preventing the incidence of adhesions of tissues in or associated with a body cavity." Action, page 3, paragraph 4. Applicant respectfully traverses this rejection.

The Action asserts that "reduction does not equal prevention." Action, page 4, paragraph 2. Applicant respectfully submits that the term "prevention" is not used in an absolute sense, but in the manner known to one of ordinary skill in the art. It is well known, for example, in the field of reproductive surgery and fertility enhancement surgery, either by microsurgery at laparotomy or by laparoscopy, to use the term "adhesion prevention" to describe techniques, adjuvants or devices that were reported to be effective in reducing postoperative adhesion formation. For several decades, in the course of studying the etiology of post-surgical adhesions and their "reduction", investigators and experts on the subject have been referring to interventions and devices as being either effective or not effective in preventing post-surgical adhesions. Numerous scientific publications and books on the subject use the terminology of "adhesion prevention", although it is recognized that indeed adhesions are reduced because not all adhesions are prevented.

The smallpox vaccination program exemplifies the clinical definition of the term "prevention" as used in the present application. Use of the small pox vaccine is commonly referred to as "prevention" although it will be appreciated that smallpox still exists and that immunization is not 100% effective. Thus, a clinician, i.e., one of ordinary skill in the art would refer to such a vaccination program as "prevention" wherein it is also accepted that the vaccination "reduces" the incidence of small pox.

As additional support for the proposition that the present invention, among other things, prevents or reduces the incidence of adhesions in a body cavity, Applicant submits herewith a Declaration under 37 C.F.R. § 1.132 of Anthony Luciano, M.D. (the "Luciano Declaration"). The Luciano Declaration presents statements from an expert in the field of the invention noting that the term "adhesion prevention" can be used to describe techniques, adjuvants or devices that are reported

to be effective in reducing postoperative adhesion formation. Thus, in view of the points set forth above and the statements presented in the Luciano Declaration, which clarify the clinical relationship of "prevention" and "reduction" as they relate to the present invention, Applicant respectfully submits that a fair evaluation of an appropriate combination of the *Wands*[1] factors as set forth in the Action at page 4, paragraph 2, shows that the present specification is enabling for preventing or reducing the incidence of adhesion in a body cavity as recited in the claims of the present invention.

Accordingly, Applicant respectfully submits that claims 1-35, 37, and 39-43 are enabled under 35 U.S.C. § 112, first paragraph, and respectfully requests that this rejection be withdrawn.

IV. Claim Rejections Under 35 U.S.C. § 103

A. Claims 1, 2, 4-10, 12, 13, 17, 18, 22, and 40-43 are patentable under 35 U.S.C. § 103

Claims 1, 2, 4-10, 12, 13, 17, 18, 22, and 40-43 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,258,175 to Davies (Davies). Applicant respectfully traverses this rejection.

Applicant has amended claim 12 to delete the recitation directed to "sulphate" as a substitute on the dextrin and to add the recitation "with the proviso that the dextrin is not substituted by strongly acidic groups selected from the group consisting of sulphate, nitrate, and phosphate groups." Moreover, Davies proposes a dextrin sulphate composition (i.e. not dextrin) for use in treating paraquat poisoning by using the composition in a peritoneal dialysis technique wherein the peritoneum is used as the dialyzing membrane.

Applicant notes that it is the **dextrin sulphate** composition of Davies, not dextrin per se, that appears to be effective. *See* Col. 1, lines 21-23. Additionally, paraquat is a strong base that typically binds with relatively high affinity to dextrin sulphate **but not to dextrin**. These results are further illustrated in Davies at Examples 8, 9, and 10. More specifically, Davies states "[t]hese results demonstrate that paraquat crosses the semi-permeable membrane of the dialysis bag and is

[1] *In re Wands*, 858 F.2d 731, 8 U.S.P.Q. 2d 1400 (Fed. Cir. 1988).

adsorbed by dextrin sulphate but not dextrin held within the dialysis bag." Col. 5, lines 44-47. Thus, the present invention and the claims are directed toward distinct dextrin derivatives specifically formulated for use for a biologically distinct process.

Applicant further submits that Davies does not provide sufficient motivation to modify its teachings to arrive at the present invention. Where Davies proposes a dextrin derivative formulated for the treatment of poisoning or drug overdose, one skilled in the art would not be motivated to use the proposed dextrin derivative of Davies as a composition useful for preventing or reducing the incidence of adhesions in a body cavity as recited in amended claim 1. Paraquat is not believed to cause peritoneal adhesions, and therefore, this problem was not acknowledged or addressed in Davies. Thus, there is no teaching in Davies that the dextrin composition may be left to dwell in a body cavity so as to separate tissues that might otherwise adhere to each other. Moreover, in view of the lack of teaching or suggestion, Applicant submits that Davies does not provide a reasonable expectation of success of arriving at the present invention. Accordingly, Davies does not teach or suggest all the claim recitations of the present invention, does not provide sufficient motivation to modify its teachings to arrive at the present invention, and does not provide a reasonable expectation of success of arriving at the present invention. Thus, Davies does not render the present invention obvious under 35 U.S.C. § 103.

B. Claims 1-19, 21, 22, 37, 39 and 40-43 are patentable under 35 U.S.C. § 103

Claims 1-19, 21, 22, 37, 39 and 40-43 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,587,175 to Viegas et al. (Viegas et al.) in view of Davies. More specifically, the Action states at page 7, "[o]ne would be motivated to combine the teachings of the Viegas et al. and Davies patents in a rejection of the instant claims since both patents disclose dextrin compositions that have medical applications." Applicant respectfully traverses this rejection.

Viegas et al. proposes an aqueous pharmaceutical vehicle comprising representative film forming polymers that include, but are not limited to polydextrose, cyclodextrin, maltodextrin, dextran, and polydextrose. *See* Col. 6, lines 33-35. Viegas et al. does not teach or suggest a composition for preventing or reducing the incidence of adhesions in a body cavity comprising an aqueous formulation

containing a polysaccharide dextrin in an amount effective to prevent or reduce such adhesions, wherein the dextrin is unsubstituted or substituted, with the proviso that the dextrin is not substituted by strongly acidic groups selected from the group consisting of sulphate, nitrate, and phosphate groups, and wherein the dextrin contains more than 15% of polymers with a degree of polymerization (DP) greater than 12 and acts as an osmotic agent to maintain a volume of the aqueous formulation in the body cavity serving to separate tissues which otherwise may adhere to each other as recited in amended claim 1.

Moreover, Viegas et al. proposes a film forming gel that gels *in situ* and may be used as a corneal and ophthalmological treatment. More specifically, Viegas proposes the formation of a protective layer between two apposing surfaces or as a cover to a single surface (to achieve drug delivery, for example). Thus, Viegas may provide a physical barrier (or delivery membrane) between untraumatized surfaces.

In contrast, the present invention provides a composition and method to address a sequence of well-understood and documented pathophysiological changes taking place between one or two traumatized surfaces. The latter effect is not achieved through any barrier means but by a hydroflotation of the general area. In this instance, dextrin may serve as an osmotic agent to establish a continued presence of an aqueous formulation in a body cavity. As disclosed on page 5 lines 23 to 31 of the present application, compositions of the present invention offer clear advantages over films and patches of the prior art. One such advantage lies in the observation that adhesions may occur not only at an operative site but also at areas remote therefrom. It is important to note that it is impractical to apply films to an entire area over which damage may occur, whereas with the composition of the present invention this is achievable. Thus, one of ordinary skill in the art desiring to prevent adhesions in a body cavity by an osmotic agent that maintains a volume of an aqueous formulation sufficient to separate tissues that might otherwise adhere to each other would not look to Viegas et al. for guidance. Moreover, Davies does not overcome the deficiencies resulting from reliance upon Viegas et al.

Thus, where Viegas et al. fails to teach or suggest all the claim recitations of the present invention and fails to suggest modification of its proposals to arrive at the

present invention, Viegas et al. does not render the present invention obvious under 35 U.S.C. § 103.

C. Claims 19 and 20.

Claims 19 and 20 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Viegas et al. and Davies, and further in view of U.S. Patent No. 5,230,933 to Apfeld et al. (Apfeld et al.). Applicant has cancelled claims 19 and 20.

Accordingly, Applicant respectfully requests that this rejection be withdrawn as being moot.

D. Claims 23-35 are patentable under 35 U.S.C. § 103

Claims 23-35 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Viegas et al. in view of U.S. Patent No. 4,886,789 to Milner (Milner). The Action maintains reasons already of record in order to reject claims 23-35, and further reiterates that the rejection is over the combination of Viegas et al. and Milner. Applicant respectfully traverses this rejection.

Contrary to the assertions of the Action, Viegas et al., alone or in combination with Milner, does not teach or suggest the present invention and does not provide a reasonable expectation of success of arriving at the present invention. Viegas et al. does not propose a method of preventing or reducing the incidence of adhesions in a body cavity, comprising introducing into the body cavity a composition comprising an aqueous formulation further comprising a polysaccharide dextrin in an amount effective to prevent or reduce the incidence of such adhesions, wherein the dextrin contains more than 15% of polymers with a degree of polymerisation (DP) greater than 12 and acts as an osmotic agent to maintain a volume of the aqueous formulation in the body cavity serving to separate tissues which otherwise may adhere to each other as recited in claim 23.

Milner is directed to a peritoneal dialysis composition containing an osmotic agent comprising a glucose polymer mixture, wherein the mixture includes at least 15% by weight of glucose polymers having a DP greater than 12. *See* Abstract. Thus, Milner also does not recite a method for preventing or reducing the incidence of adhesions in a body cavity as recited in claim 23. Even if combined, these references do not teach or suggest the present invention directed to methods of preventing or

reducing the incidence of adhesions in a body cavity as recited in claim 23. Milner's proposal relating to a peritoneal dialysis composition comprising a glucose polymer mixture does not supply the missing recitations necessary to arrive methods for preventing or reducing the incidence of adhesions in a body cavity as recited in claim 23. Moreover, Milner also fails to recognize the problem identified and addressed by the present invention as discussed above or to provide either a composition comprising an osmotic agent that maintains a volume of an aqueous formulation sufficient to separate tissues that might otherwise adhere to each other or a method of its use.

Accordingly, Applicant respectfully submits that Viegas et al., alone or in combination with Milner, does not render the present invention obvious under 35 U.S.C. § 103.

For at least the foregoing reasons, Applicant respectfully submits that the Action fails to establish a *prima facie* case of obviousness under 35 U.S.C. § 103, and requests that this rejection be withdrawn.

V. Conclusion

In view of the foregoing remarks, Applicant respectfully requests that all outstanding rejections to the claims be withdrawn and that a Notice of Allowance be issued in due course. Any questions that the Examiner may have should be directed to the undersigned, who may be reached at (919) 854-1400.

Respectfully submitted,

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Vickie Diane Prior